

09/784,553 #8

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2459-1-003CIP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : Zhou, Ming-Ming et al.
SERIAL NO. : 09/784,553 EXAMINER : Unassigned
FILED : February 16, 2001 ART UNIT : Unassigned
FOR : METHODS OF IDENTIFYING MODULATORS OF
BROMODOMAINS

Certificate of Mailing Under 37 CFR 1.8

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Anne M. Jones

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Anne M. Jones 4/7/03.
(Signature and Date)

STATEMENT IN SUPPORT OF THE FILING/SUBMISSION OF A
NUCLEOTIDE/AMINO ACID SEQUENCE LISTING IN
ACCORDANCE WITH 37 CFR §1.821 - 1.825

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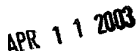
VERONICA MALLON, Ph.D., agent of record, hereby states as follows:

1. I hereby state that the content of the paper and computer readable copies of the Sequence Listing submitted in accordance with 37 CFR §1.821(c) and (e), respectively, are the same.
2. I hereby state that the submission, filed in accordance with 37 CFR §1.821(g) herein does not include new matter.

Veronica Mallon
VERONICA MALLON, Ph.D.
Agent for Applicant(s)
Registration No. 52, 491

Dated: April 7, 2003

#8



<10> Zhou, Ming-Ming
Aggarwal, Aneel

<130> 2459-1-003CIP

<141> 2001-02-16

<151> 2000-02-22

<170> PatentIn version 3.0

<211> 3014

<213> Homo sapiens

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 <213> Homo sapiens

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Ser Leu Glu Lys Lys Pro Pro Phe Glu Lys Pro Ser Ile Glu Gln Gly
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 Val Asn Asn Phe Val Gln Tyr Lys Phe Ser His Leu Pro Ala Lys Glu
 225 230 235 240
 Arg Gln Thr Ile Val Glu Leu Ala Lys Met Phe Leu Asn Arg Ile Asn
 245 250 255
 Tyr Trp His Leu Glu Ala Pro Ser Gln Arg Arg Leu Arg Ser Pro Asn
 260 265 270
 Asp Asp Ile Ser Gly Tyr Lys Glu Asn Tyr Thr Arg Trp Leu Cys Tyr
 275 280 285
 Cys Asn Val Pro Gln Phe Cys Asp Ser Leu Pro Arg Tyr Glu Thr Thr
 290 295 300
 Gln Val Phe Gly Arg Thr Leu Leu Arg Ser Val Phe Thr Val Met Arg
 305 310 315 320
 Arg Gln Leu Leu Glu Gln Ala Arg Gln Glu Lys Asp Lys Leu Pro Leu
 325 330 335
 Glu Lys Arg Thr Leu Ile Leu Thr His Phe Pro Lys Phe Leu Ser Met
 340 345 350
 Leu Glu Glu Glu Val Tyr Ser Gln Asn Ser Pro Ile Trp Asp Gln Asp
 355 360 365
 Phe Leu Ser Ala Ser Ser Arg Thr Ser Gln Leu Gly Ile Gln Thr Val
 370 375 380
 Ile Asn Pro Pro Pro Val Ala Gly Thr Ile Ser Tyr Asn Ser Thr Ser
 385 390 395 400
 Ser Ser Leu Glu Gln Pro Asn Ala Gly Ser Ser Ser Pro Ala Cys Lys
 405 410 415
 Ala Ser Ser Gly Leu Glu Ala Asn Pro Gly Glu Lys Arg Lys Met Thr
 420 425 430
 Asp Ser His Val Leu Glu Glu Ala Lys Lys Pro Arg Val Met Gly Asp
 435 440 445
 Ile Pro Met Glu Leu Ile Asn Glu Val Met Ser Thr Ile Thr Asp Pro
 450 455 460
 Ala Ala Met Leu Gly Pro Glu Thr Asn Phe Leu Ser Ala His Ser Ala
 465 470 475 480
 Arg Asp Glu Ala Ala Arg Leu Glu Glu Arg Arg Gly Val Ile Glu Phe
 485 490 495
 His Val Val Gly Asn Ser Leu Asn Gln Lys Pro Asn Lys Lys Ile Leu
 500 505 510
 Met Trp Leu Val Gly Leu Gln Asn Val Phe Ser His Gln Leu Pro Arg
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$\langle 211 \rangle$	16

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic bromodomain peptide

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<221> Xaa
<222> (2)..(4)
<223> Xaa is a maximum of three amino acids. Each of these can be any amino acid. One may be missing.

<220>
<221> Xaa
<222> (4)..(11)
<223> Xaa is a maximum of eight amino acids. Each of these can be any amino acid. One, two, or three may be missing.

<220>
<221> Xaa
<222> (5)..(5)
<223> Xaa is a single amino acid that is either Pro, Lys, or His.

<220>
<221> Xaa
<222> (6)..(6)
<223> Xaa is any single amino acid.

<220>
<221> Xaa
<222> (8)..(8)
<223> Xaa is a single amino acid that can be either Tyr, Phe, or His.

<220>
<221> Xaa
<222> (9)..(13)
<223> Xaa is 5 amino acids. Each of these can be any amino acid.

<220>
<221> Xaa
<222> (11)..(11)
<223> Xaa is a single amino acid that can be either Met, Ile, or Val.

<400> 3

Phe Xaa Pro Xaa Xaa Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Pro Xaa Asp
1 5 10 15

<210> 4
<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic bromodomain peptide

<220>
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 <222> (6)..(6)
 <223> Xaa represents an acetyl-lysine

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<210> 5
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 <213> Artificial Sequence

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 <221> Xaa
 <222> (8)..(8)
 <223> Xaa represents an acetyl lysine.

<400> 5

Ala Arg Lys Ser Thr Gly Gly Xaa Ala Pro Arg Lys Gln Leu
 1 5 10

<210> 6
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 <212> PRT
 <213> Artificial Sequence

<220>
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 <222> (8)..(8)
 <223> Xaa represents an acetyl lysine.

<400> 6

Gln Ser Thr Ser Arg His Lys Xaa Leu Met Phe Lys Thr Glu
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<210> 7
 <211> 110
 <212> PRT
 <213> Homo sapiens, bromodomain peptide

<400> 7

Ser Lys Glu Pro Arg Asp Pro Asp Gln Leu Tyr Ser Thr Leu Lys Ser
 1 5 10 15

Val Asn Lys Asp Asp Val Pro Asp Tyr Tyr Asp Val Ile Thr Asp Pro
35 40 45
Ile Asp Ile Lys Ala Ile Glu Lys Lys Leu Gln Asn Asn Gln Tyr Val
50 55 60
Asp Lys Asp Gln Phe Ile Lys Asp Val Lys Arg Ile Phe Thr Asn Ala
65 70 75 80
Lys Ile Tyr Asn Gln Pro Asp Thr Ile Tyr Tyr Lys Ala Ala Lys Glu
85 90 95
Leu Glu Asp Phe Val Glu Pro Tyr Leu Thr Lys Leu Lys
100 105

<210> 10
<211> 109
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 10

Ala Gln Arg Pro Lys Arg Gly Pro His Asp Ala Ala Ile Gln Asn Ile
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Leu Thr Glu Leu Gln Asn His Ala Ala Ala Trp Pro Phe Leu Gln Pro
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Val Asn Lys Glu Glu Val Pro Asp Tyr Tyr Asp Phe Ile Lys Glu Pro
35 40 45
Met Asp Leu Ser Thr Met Glu Ile Lys Leu Glu Ser Asn Lys Tyr Gln
50 55 60
Lys Met Glu Asp Phe Ile Tyr Asp Ala Arg Leu Val Phe Asn Asn Cys
65 70 75 80
Arg Met Tyr Asn Gly Glu Asn Thr Ser Tyr Tyr Lys Tyr Ala Asn Arg
85 90 95
Leu Glu Lys Phe Phe Asn Asn Lys Val Lys Glu Ile Pro
100 105

<210> 11
<211> 112
<212> PRT
<213> *Homo sapiens*

<400> 11

Lys Lys Ile Phe Lys Pro Glu Glu Leu Arg Gln Ala Leu Met Pro Thr
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Leu Glu Ala Leu Tyr Arg Gln Asp Pro Glu Ser Leu Pro Phe Arg Gln
20 25 30
Pro Val Asp Pro Gln Leu Leu Gly Ile Pro Asp Tyr Phe Asp Ile Val
35 40 45

Lys Ser Pro Met Asp Leu Ser Thr Ile Lys Arg Lys Leu Asp Thr Gly
50 55 60

Gln Tyr Gln Glu Pro Trp Gln Tyr Val Asp Asp Ile Trp Leu Met Phe
65 70 75 80

Asn Asn Ala Trp Leu Tyr Asn Arg Lys Thr Ser Arg Val Tyr Lys Tyr
85 90 95

Cys Ser Lys Leu Ser Glu Val Phe Glu Gln Glu Ile Asp Pro Val Met
100 105 110

<210> 12
<211> 112
<212> PRT
<213> Homo sapiens

<400> 12

Lys Lys Ile Phe Lys Pro Glu Glu Leu Arg Gln Ala Leu Met Pro Thr
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Leu Glu Ala Leu Tyr Arg Gln Asp Pro Glu Ser Leu Pro Phe Arg Gln
20 25 30

Pro Val Asp Pro Gln Leu Leu Gly Ile Pro Asp Tyr Phe Asp Ile Val
35 40 45

Lys Asn Pro Met Asp Leu Ser Thr Ile Lys Arg Lys Leu Asp Thr Gly
50 55 60

Gln Tyr Gln Glu Pro Trp Gln Tyr Val Asp Asp Val Trp Leu Met Phe
65 70 75 80

Asn Asn Ala Trp Leu Tyr Asn Arg Lys Thr Ser Arg Val Tyr Lys Phe
85 90 95

Cys Ser Lys Leu Ala Glu Val Phe Glu Gln Glu Ile Asp Pro Val Met
100 105 110

<210> 13
<211> 112
<212> PRT
<213> Mus musculus

<400> 13

Lys Lys Ile Phe Lys Pro Glu Glu Leu Arg Gln Ala Leu Met Pro Thr
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Leu Glu Ala Leu Tyr Arg Gln Asp Pro Glu Ser Leu Pro Phe Arg Gln
20 25 30

Pro Val Asp Pro Gln Leu Leu Gly Ile Pro Asp Tyr Phe Asp Ile Val
35 40 45

Lys Asn Pro Met Asp Leu Ser Thr Ile Lys Arg Lys Leu Asp Thr Gly
50 55 60

Gln Tyr Gln Glu Pro Trp Gln Tyr Val Asp Asp Val Arg Leu Met Phe
65 70 75 80

Asn Asn Ala Trp Leu Tyr Asn Arg Lys Thr Ser Arg Val Tyr Lys Phe
85 90 95

Cys Ser Lys Leu Ala Glu Val Phe Glu Gln Glu Ile Asp Pro Val Met
100 105 110

<210> 14
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<212> PRT
<213> *Caenorhabditis elegans*

<400> 14

Asp Thr Val Phe Ser Gln Glu Asp Leu Ile Lys Phe Leu Leu Pro Val
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Trp Glu Lys Leu Asp Lys Ser Glu Asp Ala Ala Pro Phe Arg Val Pro
20 25 30

Val Asp Ala Lys Leu Leu Asn Ile Pro Asp Tyr His Glu Ile Ile Lys
35 40 45

Arg Pro Met Asp Leu Glu Thr Val His Lys Lys Leu Tyr Ala Gly Gln
50 55 60

Tyr Gln Asn Ala Gly Gln Phe Cys Asp Asp Ile Trp Leu Met Leu Asp
65 70 75 80

Asn Ala Trp Leu Tyr Asn Arg Lys Asn Ser Lys Val Tyr Lys Tyr Gly
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Leu Lys Leu Ser Glu Met Phe Val Ser Glu Met Asp Pro Val Met
100 105 110

<210> 15
<211> 110
<212> PRT
<213> *Homo sapiens*

<400> 15

Arg Arg Arg Thr Asp Pro Met Val Thr Leu Ser Ser Ile Leu Glu Ser
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Ile Ile Asn Asp Met Arg Asp Leu Pro Asn Thr Tyr Pro Phe His Thr
20 25 30

Pro Val Asn Ala Lys Val Val Lys Asp Tyr Tyr Lys Ile Ile Thr Arg
35 40 45

Pro Met Asp Leu Gln Thr Leu Arg Glu Asn Val Arg Lys Arg Leu Tyr
50 55 60

Pro Ser Arg Glu Glu Phe Arg Glu His Leu Glu Leu Ile Val Lys Asn
65 70 75 80

Ser Ala Thr Tyr Asn Gly Pro Lys His Ser Leu Thr Gln Ile Ser Gln
85 90 95

Ser Met Leu Asp Leu Cys Asp Glu Lys Leu Lys Glu Lys Glu
100 105 110

<210> 16
<211> 110
<212> PRT
<213> Mesocricetus auratus

<400> 16

Arg Arg Arg Thr Asp Pro Met Val Thr Leu Ser Ser Ile Leu Glu Ser
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Ile Ile Asn Asp Met Arg Asp Leu Pro Asn Thr Tyr Pro Phe His Thr
20 25 30

Pro Val Asn Ala Lys Val Val Lys Asp Tyr Tyr Lys Ile Ile Thr Arg
35 40 45

Pro Met Asp Leu Gln Thr Leu Arg Glu Asn Val Arg Lys Arg Leu Tyr
50 55 60

Pro Ser Arg Glu Glu Phe Arg Glu His Leu Glu Leu Ile Val Lys Asn
65 70 75 80

Ser Ala Thr Tyr Asn Gly Pro Lys His Ser Leu Thr Gln Ile Ser Gln
85 90 95

Ser Met Leu Asp Leu Cys Asp Glu Lys Leu Lys Glu Lys Glu
100 105 110

<210> 17
<211> 111
<212> PRT
<213> Homo sapiens

<400> 17

Leu Leu Asp Asp Asp Asp Gln Val Ala Phe Ser Phe Ile Leu Asp Asn
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Ile Val Thr Gln Lys Met Met Ala Val Pro Asp Ser Trp Pro Phe His
20 25 30

His Pro Val Asn Lys Lys Phe Val Pro Asp Tyr Tyr Lys Val Ile Val
35 40 45

Asn Pro Met Asp Leu Glu Thr Ile Arg Lys Asn Ile Ser Lys His Lys
50 55 60

Tyr Gln Ser Arg Glu Ser Phe Leu Asp Asp Val Asn Leu Ile Leu Ala
65 70 75 80

Asn Ser Val Lys Tyr Asn Gly Pro Glu Ser Gln Tyr Thr Lys Thr Ala
85 90 95

Gln Glu Ile Val Asn Val Cys Tyr Gln Thr Leu Thr Glu Tyr Asp
 100 105 110

<210> 18
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 <212> PRT
 <213> Mesocricetus auratus

<400> 18

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Ile Val Thr Gln Lys Met Met Ala Val Pro Asp Ser Trp Pro Phe His
 20 25 30

His Pro Val Asn Lys Lys Phe Val Pro Asp Tyr Tyr Lys Val Ile Val
 35 40 45

Ser Pro Met Asp Leu Glu Thr Ile Arg Lys Asn Ile Ser Lys His Lys
 50 55 60

Tyr Gln Ser Arg Glu Ser Phe Leu Asp Asp Val Asn Leu Ile Leu Ala
 65 70 75 80

Asn Ser Val Lys Tyr Asn Gly Ser Glu Ser Gln Tyr Thr Lys Thr Ala
 85 90 95

Gln Glu Ile Val Asn Val Cys Tyr Gln Thr Leu Thr Glu Tyr Asp
 100 105 110

<210> 19
 <211> 111
 <212> PRT
 <213> Homo sapiens

<400> 19

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 20 25 30

Val Asp Ala Val Lys Leu Gly Leu Pro Asp Tyr His Lys Ile Ile Lys
 35 40 45

Gln Pro Met Asp Met Gly Thr Ile Lys Arg Arg Leu Glu Asn Asn Tyr
 50 55 60

Tyr Trp Ala Ala Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr
 65 70 75 80

Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala
 85 90 95

Gln Thr Leu Glu Lys Ile Phe Leu Gln Lys Val Ala Ser Met Pro
 100 105 110

[illegible]

Lys Pro Gly Arg Lys Thr Asn Gln Leu Gln Tyr Met Gln Asn Val Val
1 5 10 15

Val Asp Ala Ile Lys Leu Asn Leu Pro Asp Tyr His Lys Ile Ile Lys
35 40 45

Asn Pro Met Asp Met Gly Thr Ile Lys Lys Arg Leu Glu Asn Asn Tyr
50 55 60

Tyr Trp Ser Ala Ser Glu Cys Met Gln Asp Phe Asn Thr Met Phe Thr
65 70 75 80

Asn Cys Tyr Ile Tyr Asn Lys Pro Thr Asp Asp Ile Val Leu Met Ala
85 90 95

Gln Ala Leu Glu Lys Ile Phe Leu Gln Lys Val Ala Gln Met Pro
100 105 110

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<210> 21
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<212> PRT
<213> Drosophila melanogaster
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Met Lys Val Ile Trp Lys His His Phe Ser Trp Pro Phe Gln Gln Pro
20 25 30

Val Asp Ala Lys Lys Leu Asn Leu Pro Asp Tyr His Lys Ile Ile Lys
35 40 45

Gln Pro Met Asp Met Gly Thr Ile Lys Lys Arg Leu Glu Asn Asn Tyr
50 55 60

Tyr Trp Ser Ala Lys Glu Thr Ile Gln Asp Phe Asn Thr Met Phe Asn
65 70 75 80

Asn Cys Tyr Val Tyr Asn Lys Pro Gly Glu Asp Val Val Val Met Ala
85 90 95

Gln Thr Leu Glu Lys Val Phe Leu Gln Lys Ile Glu Ser Met Pro
100 105 110

13

<212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 22

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Asn Pro Ile Pro Lys His Gln Gln Lys His Ala Leu Leu Ala Ile Lys
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Ala Val Lys Arg Leu Lys Asp Ala Arg Pro Phe Leu Gln Pro Val Asp
          20           25           30
Pro Val Lys Leu Asp Ile Pro Phe Tyr Phe Asn Tyr Ile Lys Arg Pro
          35           40           45
Met Asp Leu Ser Thr Ile Glu Arg Lys Leu Asn Val Gly Ala Tyr Glu
          50           55           60
Val Pro Glu Gln Ile Thr Glu Asp Phe Asn Leu Met Val Asn Asn Ser
          65           70           75           80
Ile Lys Phe Asn Gly Pro Asn Ala Gly Ile Ser Gln Met Ala Arg Asn
          85           90           95
Ile Gln Ala Ser Phe Glu Lys His Met Leu Asn Met Pro
          100          105

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<210> 23
 <211> 113
 <212> PRT
 <213> *Homo sapiens*

<400> 23

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Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys His Cys Asn Gly Ile Leu
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Lys Glu Leu Leu Ser Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr
          20           25           30
Lys Pro Val Asp Ala Ser Ala Leu Gly Leu His Asp Tyr His Asp Ile
          35           40           45
Ile Lys His Pro Met Asp Leu Ser Thr Val Lys Arg Lys Met Glu Asn
          50           55           60
Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala Ala Asp Val Arg Leu Met
          65           70           75           80
Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala
          85           90           95
Met Ala Arg Lys Leu Gln Asp Val Phe Glu Phe Arg Tyr Ala Lys Met
          100          105          110

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Pro

<210> 24
 <211> 113

<212> PRT
<213> Homo sapiens

<400> 24

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Arg Glu Met Leu Ser Lys Lys His Ala Ala Tyr Ala Trp Pro Phe Tyr
20 25 30
Lys Pro Val Asp Ala Glu Ala Leu Glu Leu His Asp Tyr His Asp Ile
35 40 45
Ile Lys His Pro Met Asp Leu Ser Thr Val Lys Arg Lys Met Asp Gly
50 55 60
Arg Glu Tyr Pro Asp Ala Gln Gly Phe Ala Ala Asp Val Arg Leu Met
65 70 75 80
Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Glu Val Val Ala
85 90 95
Met Ala Arg Lys Leu Gln Asp Val Phe Glu Met Arg Phe Ala Lys Met
100 105 110
Pro

<210> 25
<211> 113
<212> PRT
<213> Drosophila melanogaster

<400> 25

Asn Lys Glu Lys Leu Ser Asp Ala Leu Lys Ser Cys Asn Glu Ile Leu
1 5 10 15
Lys Glu Leu Phe Ser Lys Lys His Ser Gly Tyr Ala Trp Pro Phe Tyr
20 25 30
Lys Pro Val Asp Ala Glu Met Leu Gly Leu His Asp Tyr His Asp Ile
35 40 45
Ile Lys Lys Pro Met Asp Leu Gly Thr Val Lys Arg Lys Met Asp Asn
50 55 60
Arg Glu Tyr Lys Ser Ala Pro Glu Phe Ala Ala Asp Val Arg Leu Ile
65 70 75 80
Phe Thr Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Asp Val Val Ala
85 90 95
Met Gly Arg Lys Leu Gln Asp Val Phe Glu Met Arg Tyr Ala Asn Ile
100 105 110
Pro

<210> 26

<211> 113
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 26

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 Lys Glu Leu Met Ala Lys Lys His Ala Ser Tyr Asn Tyr Pro Phe Leu
 20 25 30
 Glu Pro Val Asp Pro Val Ser Met Asn Leu Pro Thr Tyr Phe Asp Tyr
 35 40 45
 Val Lys Glu Pro Met Asp Leu Gly Thr Ile Ala Lys Lys Leu Asn Asp
 50 55 60
 Trp Gln Tyr Gln Thr Met Glu Asp Phe Glu Arg Glu Val Arg Leu Val
 65 70 75 80
 Phe Lys Asn Cys Tyr Thr Phe Asn Pro Asp Gly Thr Ile Val Asn Met
 85 90 95
 Met Gly His Arg Leu Glu Glu Val Phe Asn Ser Lys Trp Ala Asp Arg
 100 105 110

Pro

<210> 27
 <211> 108
 <212> PRT
 <213> *Homo sapiens*

<400> 27

Met Glu Met Gln Leu Thr Pro Phe Leu Ile Leu Leu Arg Lys Thr Leu
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 Glu Gln Leu Gln Glu Lys Asp Thr Gly Asn Ile Phe Ser Glu Pro Val
 20 25 30
 Pro Leu Ser Glu Val Pro Asp Tyr Leu Asp His Ile Lys Lys Pro Met
 35 40 45
 Asp Phe Phe Thr Met Lys Gln Asn Leu Glu Ala Tyr Arg Tyr Leu Asn
 50 55 60
 Phe Asp Asp Phe Glu Glu Asp Phe Asn Leu Ile Val Ser Asn Cys Leu
 65 70 75 80
 Lys Tyr Asn Ala Lys Asp Thr Ile Phe Tyr Arg Ala Ala Val Arg Leu
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 Arg Glu Gln Gly Gly Ala Val Val Arg Gln Ala Arg
 100 105

<210> 28
 <211> 113

<212> PRT
<213> Homo sapiens

<400> 28

Ser Glu Asp Gln Glu Ala Ile Gln Ala Gln Lys Ile Trp Lys Lys Ala
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Ile Met Leu Val Trp Arg Ala Ala Ala Asn His Arg Tyr Ala Asn Val
20 25 30
Phe Leu Gln Pro Val Thr Asp Asp Ile Ala Pro Gly Tyr His Ser Ile
35 40 45
Val Gln Arg Pro Met Asp Leu Ser Thr Ile Lys Lys Asn Ile Glu Asn
50 55 60
Gly Leu Ile Arg Ser Thr Ala Glu Phe Gln Arg Asp Ile Met Leu Met
65 70 75 80
Phe Gln Asn Ala Val Met Tyr Asn Ser Ser Asp His Asp Val Tyr His
85 90 95
Met Ala Val Glu Met Gln Arg Asp Val Leu Glu Gln Ile Gln Gln Phe
100 105 110
Leu

<210> 29
<211> 106
<212> PRT
<213> Gallus gallus

<400> 29

Asn Leu Pro Thr Val Asp Pro Ile Ala Val Cys His Glu Leu Tyr Asn
1 5 10 15
Thr Ile Arg Asp Tyr Lys Asp Glu Gln Gly Arg Leu Leu Cys Glu Leu
20 25 30
Phe Ile Arg Ala Pro Lys Arg Arg Asn Gln Pro Asp Tyr Tyr Glu Val
35 40 45
Val Ser Gln Pro Ile Asp Leu Met Lys Ile Gln Gln Lys Leu Lys Met
50 55 60
Glu Glu Tyr Asp Asp Val Asn Val Leu Thr Ala Asp Phe Gln Leu Leu
65 70 75 80
Phe Asn Asn Ala Lys Ala Tyr Tyr Lys Pro Asp Ser Pro Glu Tyr Lys
85 90 95
Ala Ala Cys Lys Leu Trp Glu Leu Tyr Leu
100 105

<210> 30
<211> 112

<212> PRT
<213> Gallus gallus

<400> 30

Ser Ser Pro Gly Tyr Leu Lys Glu Ile Leu Glu Gln Leu Leu Glu Ala
1 5 10 15
Val Ala Val Ala Thr Asn Pro Ser Gly Arg Leu Ile Ser Glu Leu Phe
20 25 30
Gln Lys Leu Pro Ser Lys Val Gln Tyr Pro Asp Tyr Tyr Ala Ile Ile
35 40 45
Lys Glu Pro Ile Asp Leu Lys Thr Ile Ala Gln Arg Ile Gln Asn Gly
50 55 60
Thr Tyr Lys Ser Ile His Ala Met Ala Lys Asp Ile Asp Leu Leu Ala
65 70 75 80
Lys Asn Ala Lys Thr Tyr Asn Glu Pro Gly Ser Gln Val Phe Lys Asp
85 90 95
Ala Asn Ala Ile Lys Lys Ile Phe Asn Met Lys Lys Ala Glu Ile Glu
100 105 110

<210> 31
<211> 112
<212> PRT
<213> Gallus gallus

<400> 31

Thr Ser Phe Met Asp Thr Ser Asn Pro Leu Tyr Gln Leu Tyr Asp Thr
1 5 10 15
Val Arg Ser Cys Arg Asn Asn Gln Gly Gln Leu Ile Ser Glu Pro Phe
20 25 30
Phe Gln Leu Pro Ser Lys Lys Lys Tyr Pro Asp Tyr Tyr Gln Gln Ile
35 40 45
Lys Thr Pro Ile Ser Leu Gln Gln Ile Arg Ala Lys Leu Lys Asn His
50 55 60
Glu Tyr Glu Thr Leu Asp Gln Leu Glu Ala Asp Leu Asn Leu Met Phe
65 70 75 80
Glu Asn Ala Lys Arg Tyr Asn Val Pro Asn Ser Ala Ile Tyr Lys Arg
85 90 95
Val Leu Lys Met Gln Gln Val Met Gln Ala Lys Lys Lys Glu Leu Ala
100 105 110

<210> 32
<211> 113
<212> PRT
<213> Gallus gallus

<400> 32

Ser Lys Lys Asn Met Arg Lys Gln Arg Met Lys Ile Leu Tyr Asn Ala
1 5 10 15
Val Leu Glu Ala Arg Glu Ser Gly Thr Gln Arg Arg Leu Cys Asp Leu
20 25 30
Phe Met Val Lys Pro Ser Lys Lys Asp Tyr Pro Asp Tyr Tyr Lys Ile
35 40 45
Ile Leu Glu Pro Met Asp Leu Lys Met Ile Glu His Asn Ile Arg Asn
50 55 60
Asp Lys Tyr Val Gly Glu Glu Ala Met Ile Asp Asp Met Lys Leu Met
65 70 75 80
Phe Arg Asn Ala Arg His Tyr Asn Glu Glu Gly Ser Gln Val Tyr Asn
85 90 95
Asp Ala His Met Leu Glu Lys Ile Leu Lys Glu Lys Arg Lys Glu Leu
100 105 110

Gly

<210> 33
<211> 115
<212> PRT
<213> Gallus gallus

<400> 33

Lys Lys Ser Lys Tyr Met Thr Pro Met Gln Gln Lys Leu Asn Glu Val
1 5 10 15
Tyr Glu Ala Val Lys Asn Tyr Thr Asp Lys Arg Gly Arg Arg Leu Ser
20 25 30
Ala Ile Phe Leu Arg Leu Pro Ser Arg Ser Glu Leu Pro Asp Tyr Tyr
35 40 45
Ile Thr Ile Lys Lys Pro Val Asp Met Glu Lys Ile Arg Ser His Met
50 55 60
Met Ala Asn Lys Tyr Gln Asp Ile Asp Ser Met Val Glu Asp Phe Val
65 70 75 80
Met Met Phe Asn Asn Ala Cys Thr Tyr Asn Glu Pro Glu Ser Leu Ile
85 90 95
Tyr Lys Asp Ala Leu Val Leu His Lys Val Leu Leu Glu Thr Arg Arg
100 105 110
Glu Ile Glu
115

<210> 34
<211> 112

<212> PRT

<213> Description of unknown organism, see Jeanmougin et al., Trends in Biochem. Sci. 22:151-153 (1997)

<400> 34

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His Asn Ala Pro Phe Asp Lys Thr Lys Phe Asp Glu Val Leu Glu Ala
1          5          10          15
Leu Val Gly Leu Lys Asp Asn Glu Gly Asn Pro Phe Asp Asp Ile Phe
20          25          30
Glu Glu Leu Pro Ser Lys Arg Tyr Phe Pro Asp Tyr Tyr Gln Ile Ile
35          40          45
Gln Lys Pro Ile Cys Tyr Lys Met Met Arg Asn Lys Ala Lys Thr Gly
50          55          60
Lys Tyr Leu Ser Met Gly Asp Phe Tyr Asp Asp Ile Arg Leu Met Val
65          70          75          80
Ser Asn Ala Gln Thr Tyr Asn Met Pro Gly Ser Leu Val Tyr Glu Cys
85          90          95
Ser Val Leu Ile Ala Asn Thr Ala Asn Ser Leu Glu Ser Lys Asp Gly
100         105         110
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<210> 35

<211> 113

<212> PRT

<213> Description of unknown organism, see Jeanmougin et al., Trends in Biochem. Sci. 22:151-153 (1997)

<400> 35

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Gly Thr Asn Glu Ile Asp Val Pro Lys Val Ile Gln Asn Ile Leu Asp
1          5          10          15
Ala Leu His Glu Glu Lys Asp Glu Gln Gly Arg Phe Leu Ile Asp Ile
20          25          30
Phe Ile Asp Leu Pro Ser Lys Arg Leu Tyr Pro Asp Tyr Tyr Glu Ile
35          40          45
Ile Lys Ser Pro Met Thr Ile Lys Met Leu Glu Lys Arg Phe Lys Lys
50          55          60
Gly Glu Tyr Thr Thr Leu Glu Ser Phe Val Lys Asp Leu Asn Gln Met
65          70          75          80
Phe Ile Asn Ala Lys Thr Tyr Asn Ala Pro Gly Ser Phe Val Tyr Glu
85          90          95
Asp Ala Glu Lys Leu Ser Gln Leu Ser Ser Ser Leu Ile Ser Ser Phe
100         105         110
Ser
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<210> 36

<211> 113
 <212> PRT
 <213> Homo sapiens

<400> 36

Gly Thr Asn Glu Ile Asp Val Pro Lys Val Ile Gln Asn Ile Leu Asp
 1 5 10 15
 Ala Leu His Glu Glu Lys Asp Glu Gln Gly Arg Phe Leu Ile Asp Ile
 20 25 30
 Phe Ile Asp Leu Pro Ser Lys Arg Leu Tyr Pro Asp Tyr Tyr Glu Ile
 35 40 45
 Ile Lys Ser Pro Met Thr Ile Lys Met Leu Glu Lys Arg Phe Lys Lys
 50 55 60
 Gly Glu Tyr Thr Thr Leu Glu Ser Phe Val Lys Asp Leu Asn Gln Met
 65 70 75 80
 Phe Ile Asn Ala Lys Thr Tyr Asn Ala Pro Gly Ser Phe Val Tyr Glu
 85 90 95
 Asp Ala Glu Lys Leu Ser Gln Leu Ser Ser Ser Leu Ile Ser Ser Phe
 100 105 110
 Ser

<210> 37
 <211> 114
 <212> PRT
 <213> Homo sapiens

<400> 37

Ser Pro Asn Pro Pro Asn Leu Thr Lys Lys Met Lys Lys Ile Val Asp
 1 5 10 15
 Ala Val Ile Lys Tyr Lys Asp Ser Ser Ser Gly Arg Gln Leu Ser Glu
 20 25 30
 Val Phe Ile Gln Leu Pro Ser Arg Lys Glu Leu Pro Glu Tyr Tyr Glu
 35 40 45
 Leu Ile Arg Lys Pro Val Asp Phe Lys Lys Ile Lys Glu Arg Ile Arg
 50 55 60
 Asn His Lys Tyr Arg Ser Leu Asn Asp Leu Glu Lys Asp Val Met Leu
 65 70 75 80
 Leu Cys Gln Asn Ala Gln Thr Phe Asn Leu Glu Gly Ser Leu Ile Tyr
 85 90 95
 Glu Asp Ser Ile Val Leu Gln Ser Val Phe Thr Ser Val Arg Gln Lys
 100 105 110
 Ile Glu

<210> 38
 <211> 113
 <212> PRT
 <213> Gallus gallus

<400> 38

Ser	Pro	Asn	Pro	Pro	Lys	Leu	Thr	Lys	Gln	Met	Asn	Ala	Ile	Ile	Asp
1			5					10					15		
Thr	Val	Ile	Asn	Tyr	Lys	Asp	Ser	Ser	Gly	Arg	Gln	Leu	Ser	Glu	Val
		20					25					30			
Phe	Ile	Gln	Leu	Pro	Ser	Arg	Lys	Glu	Leu	Pro	Glu	Tyr	Tyr	Glu	Leu
	35					40					45				
Ile	Arg	Lys	Pro	Val	Asp	Phe	Lys	Lys	Ile	Lys	Glu	Arg	Ile	Arg	Asn
	50					55					60				
His	Lys	Tyr	Arg	Ser	Leu	Gly	Asp	Leu	Glu	Lys	Asp	Val	Met	Leu	Leu
65				70					75					80	
Cys	His	Asn	Ala	Gln	Thr	Phe	Asn	Leu	Glu	Gly	Ser	Gln	Ile	Tyr	Glu
		85						90					95		
Asp	Ser	Ile	Val	Leu	Gln	Ser	Val	Phe	Lys	Ser	Ala	Arg	Gln	Lys	Ile
		100						105					110		

Ala

<210> 39
 <211> 114
 <212> PRT
 <213> Gallus gallus

<400> 39

Ser	Pro	Asn	Pro	Pro	Asn	Leu	Thr	Lys	Lys	Met	Lys	Lys	Ile	Val	Asp
1			5					10					15		
Ala	Val	Ile	Lys	Tyr	Lys	Asp	Ser	Ser	Ser	Gly	Arg	Gln	Leu	Ser	Glu
		20					25					30			
Val	Phe	Ile	Gln	Leu	Pro	Ser	Arg	Lys	Glu	Leu	Pro	Glu	Tyr	Tyr	Glu
	35					40					45				
Leu	Ile	Arg	Lys	Pro	Val	Asp	Phe	Lys	Lys	Ile	Lys	Glu	Arg	Ile	Arg
	50					55					60				
Asn	His	Lys	Tyr	Arg	Ser	Leu	Asn	Asp	Leu	Glu	Lys	Asp	Val	Met	Leu
65				70					75					80	
Leu	Cys	Gln	Asn	Ala	Gln	Thr	Phe	Asn	Leu	Glu	Val	Ser	Leu	Ile	Tyr
		85						90					95		
Glu	Asp	Ser	Ile	Val	Leu	Gln	Ser	Val	Phe	Thr	Ser	Val	Arg	Gln	Lys
		100						105					110		

Ile Glu

<210> 40
 <211> 105
 <212> PRT
 <213> Homo sapiens

<400> 40

Ala Lys Leu Ser Pro Ala Asn Gln Arg Lys Cys Glu Arg Val Leu Leu
 1 5 10 15
 Ala Leu Phe Cys His Glu Pro Cys Arg Pro Leu His Gln Leu Ala Thr
 20 25 30
 Asp Ser Thr Phe Ser Leu Asp Gln Pro Gly Gly Thr Leu Asp Leu Thr
 35 40 45
 Leu Ile Arg Ala Arg Leu Gln Glu Lys Leu Ser Pro Pro Tyr Ser Ser
 50 55 60
 Pro Gln Glu Phe Ala Gln Asp Val Gly Arg Met Phe Lys Gln Phe Asn
 65 70 75 80
 Lys Leu Thr Glu Asp Lys Ala Asp Val Gln Ser Ile Ile Gly Leu Gln
 85 90 95
 Arg Phe Phe Glu Thr Arg Met Asn Glu
 100 105

<210> 41
 <211> 105
 <212> PRT
 <213> Mus musculus

<400> 41

Ala Lys Leu Ser Pro Ala Asn Gln Arg Lys Cys Glu Arg Val Leu Leu
 1 5 10 15
 Ala Leu Phe Cys His Glu Pro Cys Arg Pro Leu His Gln Leu Ala Thr
 20 25 30
 Asp Ser Thr Phe Ser Met Glu Gln Pro Gly Gly Thr Leu Asp Leu Thr
 35 40 45
 Leu Ile Arg Ala Arg Leu Gln Glu Lys Leu Ser Pro Pro Tyr Ser Ser
 50 55 60
 Pro Gln Glu Phe Ala Gln Asp Val Gly Arg Met Phe Lys Gln Phe Asn
 65 70 75 80
 Lys Leu Thr Glu Asp Lys Ala Asp Val Gln Ser Ile Ile Gly Leu Gln
 85 90 95
 Arg Phe Phe Glu Thr Arg Met Asn Asp
 100 105

<210> 42
 <211> 108

<212> PRT
<213> Mus sp.

<400> 42

Thr Lys Leu Thr Pro Ile Asp Lys Arg Lys Cys Glu Arg Leu Leu Leu
1 5 10 15
Phe Leu Tyr Cys His Glu Met Ser Leu Ala Phe Gln Asp Pro Val Pro
20 25 30
Leu Thr Val Pro Asp Tyr Tyr Lys Ile Ile Lys Asn Pro Met Asp Leu
35 40 45
Ser Thr Ile Lys Lys Arg Leu Gln Glu Asp Tyr Cys Met Tyr Thr Lys
50 55 60
Pro Glu Asp Phe Val Ala Asp Phe Arg Leu Ile Phe Gln Asn Cys Ala
65 70 75 80
Glu Phe Asn Glu Pro Asp Ser Glu Val Ala Asn Ala Gly Ile Lys Leu
85 90 95
Glu Ser Tyr Phe Glu Glu Leu Leu Lys Asn Leu Tyr
100 105

<210> 43
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic bromodomain peptide

<220>
<221> Xaa
<222> (1)..(1)
<223> Xaa can be any single amino acid

<220>
<221> Xaa
<222> (2)..(2)
<223> Xaa can be any single amino acid

<220>
<221> Xaa
<222> (4)..(6)
<223> Xaa is a maximum of three amino acids. Each of these can be any amino acid. One may be missing.

<220>
<221> Xaa
<222> (6)..(13)
<223> Xaa is a maximum of eight amino acids. Each of these can be any amino acid. One, two, or three may be missing.

<220>
<221> Xaa

<222> (7)..(7)
 <223> Xaa is a single amino acid that can be Pro, Lys, or His.

<220>
 <221> Xaa
 <222> (8)..(8)
 <223> Xaa is a single amino acid that can be any amino acid.

<220>
 <221> Xaa
 <222> (10)..(10)
 <223> Xaa is a single amino acid that can be a Tyr, Phe, or His.

<220>
 <221> Xaa
 <222> (11)..(15)
 <223> Xaa is five amino acids. Each of these can be any amino acid.

<220>
 <221> Xaa
 <222> (13)..(13)
 <223> Xaa is a single amino acid that can be Met, Ile, or Val.

<400> 43
 Xaa Xaa Phe Xaa Pro Xaa Xaa Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Pro Xaa Asp
 1 5 10 15

<210> 44
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic bromodomain peptide

<400> 44
 Trp Pro Phe Met Glu Pro Val Lys Arg Thr Glu Ala Pro Gly Tyr Tyr
 1 5 10 15
 Glu Val Ile Arg
 20

<210> 45
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus type 1 Tat protein

<400> 45
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15
 Gln Pro Lys Thr Ala Ser Asn Asn Cys Tyr Cys Lys Arg Cys Cys Leu
 20 25 30

His Cys Gln Val Cys Phe Thr Lys Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Lys Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Lys Val Glu Arg Glu Thr Glu
 85 90 95

Thr Asp Pro Glu Asp
 100

<210> 46
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic HIV-1 Tat peptide

<220>
 <221> Xaa
 <222> (5)..(7)
 <223> Xaa is a maximum of three amino acids. Each amino acid can be any amino acid. One or two may be missing.

<400> 46

Tyr Gly Arg Lys Xaa Arg Gln
 1 5

<210> 47
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic HIV-1 Tat peptide

<400> 47

Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg
 1 5 10

<210> 48
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic bromodomain peptide

<220>
 <221> Xaa
 <222> (2)..(5)
 <223> Xaa is a maximum of four amino acids. Each of these can be any amino acid. One or two may be missing.

<220>
 <221> Xaa
 <222> (4)..(7)
 <223> Xaa is a maximum of four amino acids. Each of these can be any amino acid. One or two may be missing.

<220>
 <221> Xaa
 <222> (6)..(9)
 <223> Xaa is a maximum of four amino acids. Each of these can be any amino acid. One or two may be missing.

<220>
 <221> Xaa
 <222> (8)..(10)
 <223> Xaa is a maximum of three amino acids. Each of these can be any amino acid. One or two may be missing.

<220>
 <221> Xaa
 <222> (10)..(10)
 <223> Xaa is a single amino acid that is either Ile, Leu, Met, or Val.

<400> 48

Phe Xaa Val Xaa Glu Xaa Tyr Xaa Val Xaa
 1 5 10

<210> 49
 <211> 62
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic bromodomain peptide

<400> 49

Phe Met Glu Pro Val Lys Arg Thr Glu Ala Pro Gly Tyr Tyr Glu Val
 1 5 10 15

Ile Arg Phe Pro Met Asp Leu Lys Thr Met Ser Glu Arg Leu Lys Asn
 20 25 30

Arg Tyr Tyr Val Ser Lys Lys Leu Phe Met Ala Asp Leu Gln Arg Val
 35 40 45

Phe Thr Asn Cys Lys Glu Tyr Asn Ala Ala Glu Ser Glu Tyr
 50 55 60

<210> 50
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic HIV-1 Tat peptide

<220>
 <221> Xaa

<222> (5)..(5)
 <223> Xaa is an acetylated lysine (AcK).
 <400> 50
 Ser Tyr Gly Arg Xaa Lys Arg Arg Gln Arg Cys
 1 5 10

<210> 51
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic HIV-1 Tat peptide

<220>
 <221> Xaa
 <222> (5)..(5)
 <223> Xaa is an acetylated lysine (AcK).
 <400> 51

Ser Ala Gly Arg Xaa Lys Arg Arg Gln Arg Cys
 1 5 10

<210> 52
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic HIV-1 Tat peptide

<220>
 <221> Xaa
 <222> (5)..(5)
 <223> Xaa ia an acetylated lysine (AcK).
 <400> 52

Ser Tyr Gly Ala Xaa Lys Arg Arg Gln Arg Cys
 1 5 10

<210> 53
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic HIV-1 Tat peptide

<220>
 <221> Xaa
 <222> (5)..(5)
 <223> Xaa is an acetylated lysine (AcK).
 <400> 53

Ser Tyr Gly Arg Xaa Ala Arg Arg Gln Arg Cys
 1 5 10

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<210> 54
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic HIV-1 Tat peptide

<220>
<221> Xaa
<222> (5)..(5)
<223> Xaa is an acetylated lysine (AcK).

<400> 54
Ser Tyr Gly Arg Xaa Lys Ala Arg Gln Arg Cys
1          5          10

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```

<210> 55
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic HIV-1 Tat peptide

<220>
<221> Xaa
<222> (5)..(5)
<223> Xaa is an acetylated lysine (AcK)

<400> 55

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Ser Tyr Gly Arg Xaa Lys Arg Ala Gln Arg Cys
1          5          10

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<210> 56
<211> 11
<212> PRT
<213> Artificial Sequence

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<220>
<223> synthetic HIV-1 Tat peptide

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<220>
<221> Xaa
<222> (5)..(5)
<223> Xaa is an acetylated lysine (AcK)

```

```

<400> 56

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```

Ser Tyr Gly Arg Xaa Lys Arg Arg Ala Arg Cys
1          5          10

```

```

<210> 57
<211> 11
<212> PRT
<213> Artificial Sequence

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<220>

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<223> synthetic HIV-1 Tat peptide

<220>

<221> Xaa

<222> (6)..(6)

<223> Xaa is an acetylated lysine (AcK)

<400> 57

Ser Tyr Gly Arg Lys Xaa Arg Arg Gln Arg Cys
1 5 10

<210> 58

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic HIV-1 Tat peptide

<220>

<221> Xaa

<222> (7)..(7)

<223> Xaa is an acetylated lysine (AcK)

<400> 58

Thr Asn Cys Tyr Cys Lys Xaa Cys Cys Phe His
1 5 10

<210> 59

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic histone H4 AcK16 peptide

<220>

<221> Xaa

<222> (16)..(16)

<223> Xaa is an acetylated lysine (AcK)

<400> 59

Ser Gly Arg Gly Lys Gly Gly Lys Gly Leu Gly Lys Gly Gly Ala Xaa
1 5 10 15

Arg His Arg Lys
20

<210> 60

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic HIV-1 Tat peptide

<400> 60

Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Cys
1 5 10